

DAUFUSKIE ISLAND FEASIBILITY REPORT  
AND  
DEVELOPMENT ALTERNATIVES

Prepared By  
THE SOUTH CAROLINA DEPARTMENT OF  
PARKS, RECREATION AND TOURISM

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## PREFACE

Much appreciation is extended to Mr. George Bostwick for allowing PRT access to his property for on-site research and data collection. Thanks are also given to the South Carolina Wildlife and Marine Resources Department for providing transportation to and from the Island on numerous occasions.

Appreciation is extended to the SCORP Exchange Council Recreation User Committee for their suggestions relative to the development concepts and the Daufuskie Island Community Improvement Club for their continued interest and support of the project.

## I. INTRODUCTION

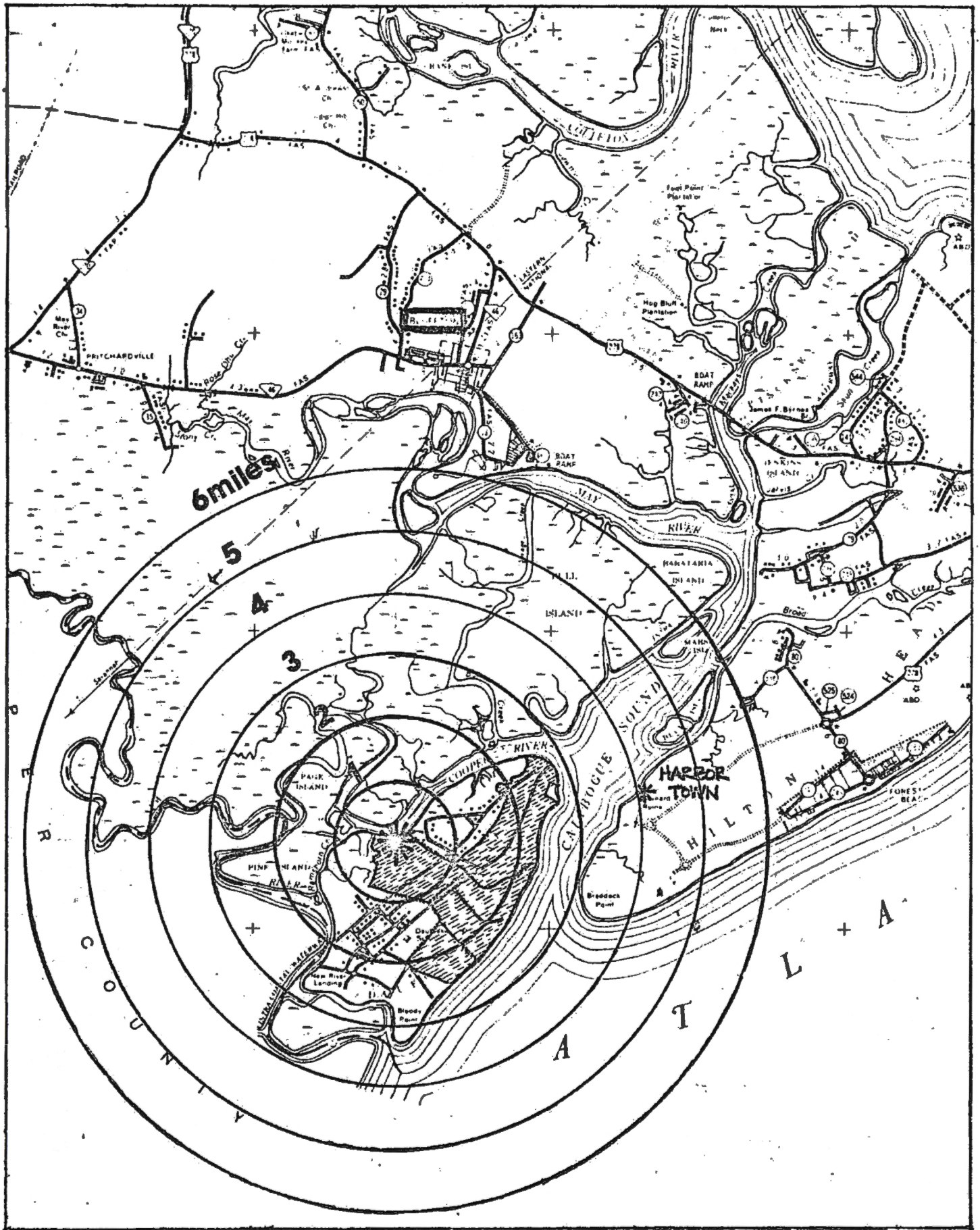
Daufuskie Island is one of the most remote communities in South Carolina. The island consists of about 6,000 acres, and it is located in Beaufort County just southwest of Hilton Head Island. The island is accessible from the mainland only by boat. (Refer to location map.)

The 1970 Census of Population reported the total number of residents on Daufuskie Island as 112 of which 102 were black. The 1970 Census also shows that the majority of residents were 18 years and younger or 65 years and older. The community itself, therefore, is characterized by large numbers of people who are not in the work force.

This staff study was undertaken to investigate the possibility of creating a state park on 2,313 acres on Daufuskie. The property in question is owned by Mr. George Bostwick. The idea of State ownership would be based on the premise that the owner would agree to a 50 percent gift of the fair market value of his land. Initial staff investigations indicated that Mr. Bostwick's three tracts are not contiguous, and therefore it would be difficult to manage as any development would be necessarily dispersed. Further study relative to limitations with suitability of terrain for development has supported an additional need to acquire the 742-acre Sea Pines tract. This tract would provide additional developable lands, better beach frontage and would connect all of the Bostwick property (refer to ownership map).

Therefore, the final recommendations in this study are based on the assumption that Mr. Bostwick's property would be a 50 percent gift to the State and the Sea Pines tract would be acquired by PRT.









## II. OBJECTIVES AND SCOPE

The purpose of this study is to determine the feasibility of developing a state park on 2,313 acres located on Daufuskie Island. An extensive investigation of the study area was conducted in order to properly assess the existing conditions, needs, potential, alternatives and priorities regarding the proposed project.

First the economic, sociological and recreational characteristics, needs and potential of the study area were assessed. Simultaneously, a site analysis was conducted in order to fully determine the potential, limitations and characteristics of the natural and man-made features of the site.

Once these analyses were completed, the relevant aspects of each were considered in arriving at alternative conceptual plans for the property, ranging from little or no development to maximum development. Total costs and revenues were then projected for each conceptual plan, including the impact each would have on the islanders.

It is assumed that the property under study can be acquired through a combination gift and matching federal funds with little or no state money. Therefore, the cost of acquiring the Bostwick Tracts with state appropriations has not been addressed in this report.

### III. ECONOMIC AND SOCIOLOGICAL ANALYSIS

Since the constantly changing nature of economic relationships and population growth have a direct bearing on recreation demands, a brief discussion of their impact in the study area is in order.

#### A. ECONOMIC DATA

##### 1. Income Levels

The Beaufort County area is experiencing an increase in its income level. Between 1970 and 1974 the effective buying income (EBI) rose from \$111,584,000 to \$227,373,000 or 26 percent. On a per capita basis, the level of EBI rose from \$2,129 in 1970 to \$3,907 in 1974. This represents an average annual increase of 20.9 percent. This becomes especially important when compared to the rate of inflation as portrayed by the Consumer Price Index. During this same period of time, the CPI rose at an average annual rate of 6.8 percent. The rapid rise in both total effective buying income and per capita effective buying income underscores the continued in-migration of both the wealthy and the retired.

##### 2. Employment Growth

The employment base of Beaufort County has tended to grow at a considerably lower rate than that of the population level, and this also indicates the continued influx of both the wealthy and the retired. During the period 1950-1960, the employment base rose by approximately 10 percent. During the next ten years, the employment base grew to a level of approximately 13,000 or a total increase of 38.2 percent. These figures indicate the effect of population increases on the employment base. Since the number of Beaufort County residents who do not require employment is increasing and the employment base is oriented towards the service sectors of the

economy, increased periods of leisure time can be expected.

The primary problem stems from seasonal unemployment and underemployment due to the seasonal nature of the tourist and agricultural sectors.

BEAUFORT COUNTY EMPLOYMENT  
TRENDS

	1960		1970		Change	
	No.	%	No.	%	No.	%
<u>Total</u>	9,410	100.0	13,000	100.0	3,590	38.2
<u>Manufacturing</u>	430	4.6	850	6.5	420	97.7
<u>Service</u>	6,940	73.8	11,100	85.4	4,160	59.9
Contract Construction	350		850		500	14.3
Transport., Communi- cations, Utilities	180		350		170	94.4
Wholesale & Retail Trade	1,140		1,700		560	49.1
Finance, Insurance, Real Estate	220		850		630	28.6
Services	730		1,600		870	11.9
Government	2,340		3,500		1,160	49.6
Other	---		50		50	---
Self-employed, unpaid family workers, domestics	1,980		2,200		240	-.94
<u>Agriculture</u>	2,040	21.6	1,050	8.1	-990	

SOURCE: South Carolina Employment Security Commission

### 3. Economic Base

The major components of Beaufort County's economy are the military; tourism and recreation; agriculture, forestry and fishing; and manufacturing. (See table below.)

# BEAUFORT COUNTY: ECONOMIC BASE

Activity	Direct Expenditures	Total Sales	% of Estimated Gross Salaries
Military	\$ 84,661,000	\$187,700,000	46
Tourism and Recreation	11,990,000	25,844,000	6
Agriculture, Forestry and Fisheries	7,333,000	19,467,000	5
Manufacturing	9,345,000	12,961,000	3
Totals	\$111,628,000	\$245,972,000	60

SOURCE: "St. Phillips Island Study," Ian McHarg et. al.

Beaufort County's three military installations accounted for 46 percent of estimated gross County sales in 1970 (Division of Administration, 1973). Although the military represents Beaufort's largest "industry," its impact on the local economy is depressed somewhat since the great majority of military sales occur in military establishments. Nonetheless, the military income which does accrue to the County in the form of wages is considerable. However, the military presence in Beaufort has over the years been rather unstable (20,000 personnel in 1968, 12,000 in 1970.)

Due to the quality of Beaufort's coastal amenities and climate, the County's recreation and tourism industry has grown steadily in the last 15 years. Recreation and tourism accounted for six percent of estimated gross sales in 1970, 12.6 percent of total payroll in 1972, and 15.9 percent of total 1972 employment.

Agriculture, forestry and fishing represented five percent of estimated gross sales in 1970. Although the total number of farms decreased over

54 percent and total farm acreage decreased over 14 percent from 1964 to 1969, there was a 4.3 percent increase in the market value of all agricultural products sold. The market value of forest products rose 8.5 percent in the same period despite a fall in the number of active acres of land managed and used for timber production.

Manufacturing accounted for three percent of the 1970 estimated gross county sales. The food and kindred products industry, especially fish processing, dominate this sector, accounting for half of the firms and 40 percent of total manufacturing employment in 1972.

SOURCE: "St. Phillip's Island Study," Ian McHarg et. al.

In summary, this data would indicate that Beaufort County could easily support a destination park facility.

## B. DEMOGRAPHIC DATA

### 1. Population Trends

The Beaufort County population base has been enjoying a steady increase for the last three decades and is expected to grow significantly in the future. During the period 1950-1960, the Beaufort County population base grew from 26,993 to 44,189 or 64 percent. Although the county continued to experience an increased population during the 1960's, the rate was considerably slower with the 1970 population reaching 51,136. This represents a 16 percent increase over the 1960 population level.

The projected population base for Beaufort County in 1980 is 56,200 and for 1985 is 58,400. Based on these projections, Beaufort County will continue to expand its population but at a reduced rate.



BEAUFORT COUNTY POPULATION

<u>1960</u>	<u>ACTUAL</u> <u>1970</u>	<u>1980</u>	<u>PROJECTED</u> <u>1985</u>	<u>1990</u>
44,192	51,136	56,200	58,400	60,700

These factors along with other general population characteristics of the Region might indicate a high local population usage for a destination park on Daufuskie Island.



#### IV. RECREATION NEED AND POTENTIAL

##### A. EXISTING AREA RECREATION

Nine state parks are scattered along South Carolina's popular coastal region. Hunting Island, Edisto Beach, Huntington Beach and Myrtle Beach are all oceanfront and offer varied resort facilities and activities. Hunting Island, near Beaufort, is South Carolina's only sea island state park. This subtropical barrier island has several miles of wide, sandy beaches, lagoons and lush vegetation and has oceanfront camping and vacation cabins. Some 50 miles south of Charleston, Edisto Beach State Park has two miles of beautiful beach lined palmetto trees. Huntington Beach State Park near Murrells Inlet also has many attractions. Myrtle Beach State Park is the most visited of any park in the state with its campsites, cabins, outdoor swimming pool and 720-foot saltwater fishing pier. Charles Towne Landing and Givhans Ferry are popular parks with Charleston area visitors. A 667-acre exposition park, Charles Towne Landing, features a historical exhibit pavilion; a 20-acre animal forest; a replica of a 17th century trading ship; an English garden and much more. Visitors can enjoy cabins and camping at Givhans Ferry State Park near Summerville. At Old Dorchester State Park, history comes alive as an old Revolutionary War Fort is being excavated. A Confederate museum and authentic Civil War breastworks are attractions at Rivers Bridge State Park near Allendale. Restoration work is also underway at 18th century Hampton Plantation.

South Carolina's coastline is the most popular area of the state with travelers. Its many attractions and points of interest also include Myrtle Beach and the Grand Strand, golfing and saltwater fishing all along the coast, historical Charleston and numerous sea islands.

Specifically, Beaufort County has 172 outdoor recreation sites which were inventoried in 1975, consisting of 42,813 acres.

**B. RECREATION NEEDS**

According to the 1975 SCORP document, Beaufort County shows the greatest projected outdoor recreation needs for the next 15-year period for playfields, neighborhood parks, citywide parks and destination parks. The following table summarizes these needs.

**BEAUFORT COUNTY  
OUTDOOR RECREATION NEEDS**

BOR CLASS*	NEEDS IN ACRES			
	1975	1980	1985	1989
1-1	-215	-215	-214	-214
1-2	191	188	193	197
2-1	-13,320	-13,331	-13,315	-13,301
2-2	1,068	1,055	1,075	1,091

\*1-1 includes playgrounds; 1-2 includes playfields, neighborhood parks, citywide parks; 2-1 district parks, regional parks; and 2-2 destination parks. A minus (-) preceeding the figure indicates a surplus of acreage. Source: 1975 SCORP, Title 2.

The Lowcountry Region as a whole, also shows the greatest projected outdoor recreation needs for this 15-year span for playfields, neighborhood parks, citywide parks and destination parks. Refer to table below.

LOWCOUNTRY REGION  
OUTDOOR RECREATION NEEDS

BOR CLASS	NEEDS IN ACRES			
	1975	1980	1985	1989
1-1	414	405	418	428
2-1	-13,125	-13,179	-13,141	-13,108
2-2	2,519	2,451	2,500	2,538

Source: 1975 SCORP, Title 2.

C. RECREATION POTENTIAL

When analyzing outdoor recreation acreage needs with respect to the need for property such as Daufuskie Island, several points must be considered and clarified. Of primary concern is how to classify the island in terms of park type. Acreage, general physical configuration, general purpose, among other factors, indicate that Daufuskie Island could be classified as a destination park facility. Assuming this is to be true, the acreage need for a destination park in Beaufort County and the Lowcountry Region has already been established above.

When viewed in these terms, the recreation potential of the site looks optimistic. However, other factors such as access to the site, beach access and physical development constraints, must be analyzed prior to predicting the site's potential for state park recreation.

## V. RESOURCE ANALYSIS

### A. A BRIEF HISTORY

Undoubtedly attracted to the island by its abundant wildlife and seafood found in the many creeks that cut into its interior, many prehistoric groups as far back as the mid-Archaic period wandered Daufuskie in search of food. Two known sites have been recorded (see attached maps) and numerous other sites are said to exist throughout the Island.<sup>1</sup> One of these ancient tribes may have witnessed the entry into the Port Royal Sound area by the French, Spanish and, later, the English, who were searching for locations for permanent settlements.<sup>2</sup>

It was the English who eventually settled the area. All went well with the natives until the Summer of 1715, when the Indians revolted against land encroachments of the white settlers and corruption of the traders. One of the last major battles of the Yemassee War, as the conflict came to be known, took place on the southern end of the Island. Here members of the local militia surprised a group of escaping Yemassee raiders. Only a few Indians escaped the deadly ambush and tradition has it that the encounter was so brutal that to commemorate the battle the name "Bloody Point" was given to the area.<sup>3</sup>

The first royal grant probably was given to John Mongin (Mungin), by King George II of England for his service against Spanish pirates.<sup>4</sup>

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<sup>1</sup>Dr. Robert Stephenson, Institute of Archaeology and Anthropology, USC.

<sup>2</sup>D.D. Wallace, A Short History of South Carolina, pp. 15-22, 25.

<sup>3</sup>J. Chapman Milling, Red Carolinians, pp. 147-48.

<sup>4</sup>The Atlanta Journal and Constitution, "Gullah Dialect Preserved on Daufuskie Island," June 30, 1968.

During the colonial period, several others are known to have established homes on the Island.

After the Revolution the island planters continued to prosper raising sea island cotton.<sup>5</sup> Little information has been uncovered relating to these plantation owners because the records of Beaufort County during the ante-bellum period have been destroyed. During the Civil War several expeditions were made to the island by Confederate and Union forces.<sup>6</sup> One Union officer described the Stoddard Plantation, "Melrose," on the Island in these words: "Finer there never was; large, elegant and tasteful mansion with an abundance of outbuildings, then further back quarters. Such a garden never was, I do believe."<sup>6</sup> No major activity took place here during the war. The island was deserted except for a few old members of slave families.

After the Civil War the steamer trade between Charleston and Savannah began to increase. As part of the navigation system established by the United States government to guide shipping in this area, land was purchased on Daufuskie March 3, 1871, to construct a pair of range lights. The beacons for these lights were first exhibited on October 1, 1873. The front beacon was a steamer lens housed in a wooden tower supported by the keeper's house. The real light was of the fifth order Fresnel and some 750 yards away. The Daufuskie Island Range Light Station was decommissioned January 13, 1936.<sup>7</sup>

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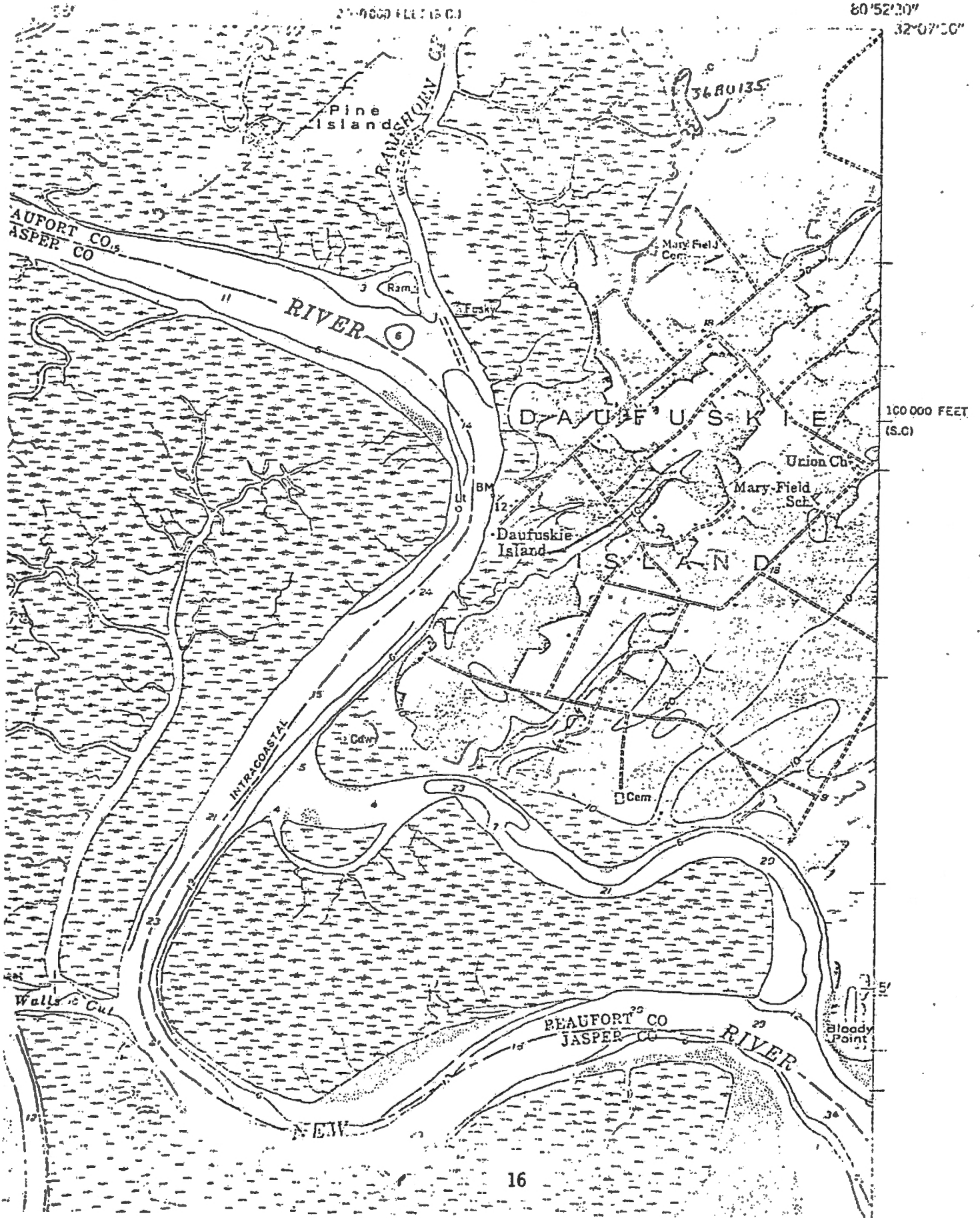
<sup>5</sup>War of Rebellion, May 11, 1864, January 29, 1863.

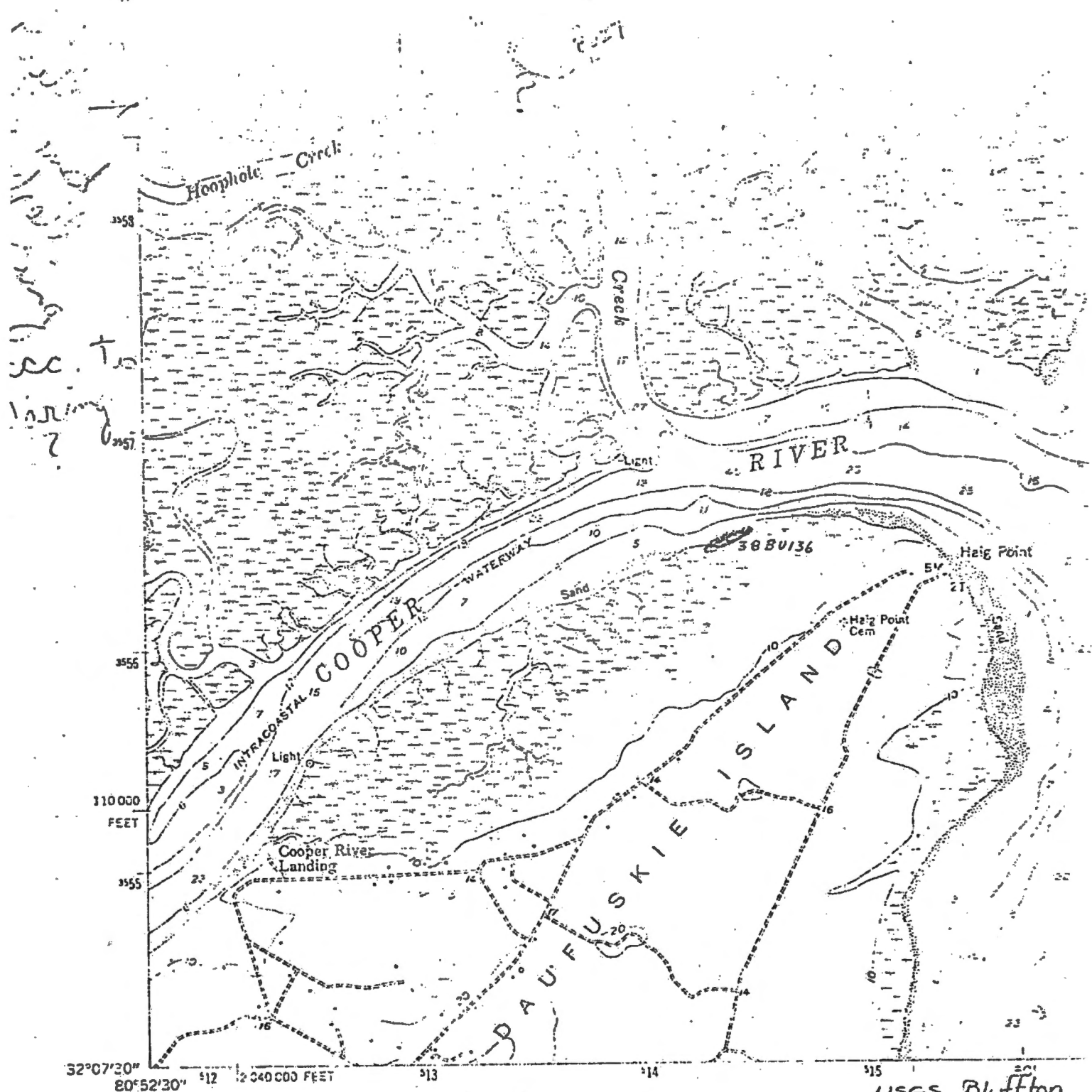
<sup>6</sup>Atlanta Journal article.

<sup>7</sup>South Carolina Wildlife Magazine, January - February, 1977, "The Lonely Towers," Cassie Griffin, pp. 35-36.

FORT POLASKI QUADRANGLE  
SOUTH CAROLINA GEORGIA  
7.5 MINUTE SERIES (TOPOGRAPHIC)  
SW/4 POLARIS 15' QUADRANGLE

BLUFFTON





Mapped, edited, and published by the Geological Survey

Control by USGS, USC&GS, and South Carolina Geodetic Survey

Culture and drainage in part compiled from aerial photographs taken 1951 and from USC&GS charts T-5134, T-5135, T-5211, and T-5212. Topography by plane-table surveys 1956

Hydrography compiled from USC&GS charts 571 (1950) and 440 (1955)

Polyconic projection. 1927 North American datum  
10,000-foot grid based on South Carolina coordinate system,  
south zone.

10° magnetic variation from true Meridian grid 1950,  
zone 17, shown in blue

USGS Bluffton



10° magnetic variation from true Meridian grid 1950,  
zone 17, shown in blue

## B. NATURAL HISTORY

Daufuskie Island is one of a series of barrier islands oriented in a northeasterly-southwesterly direction paralleling the South Carolina mainland south of Georgetown. The Island lies to the north of Turtle Island, the southern most point of land in South Carolina, separated by the New River. It lies to the south and west of Hilton Head Island, the largest of South Carolina's barrier islands separated by Calibogue Sound. The Cooper River and Ramshorn Creek, part of the Intracoastal Waterway, bound the island on the west and north and the eastern shore of Daufuskie fronts on Calibogue Sound and the Atlantic Ocean.

Barrier islands along the South Carolina coast share certain characteristic properties owed to the similarity of their geological formation and the similarity of those environmental factors which maintain the structure of the Island habitat. Aside from the geomorphic features of the Island, Daufuskie must be considered as totally atypical of South Carolina barrier islands. The vegetational make-up of the island differs markedly from similar habitats along the State's coastline (at least when compared to geomorphically similar habitats).

## C. GEOLOGY

Barrier islands along the South Carolina coast trace their formation to a period of standstill following the landward migration of the coastal strandline. Sedimentation of marine materials over existing continental shelf or previously submerged coastal plain regions followed by a subsequent seaward migration of the strandline has left these sea islands as isolated landmasses, broken in their linear plane by numerous rivers and inlets.



The entire Atlantic coastline displays a characteristic geomorphic feature, the presence of coastal terraces. These terraces reflect the cyclic advances and retreats of the sea during which sediments were deposited and eroded. Coastal terraces evidenced in South Carolina at present represent Pleistocene glacial fluctuations with the present coastline constituting the landward boundary of the Recent coastal terrace.

D. PHYSIOGRAPHY

Daufuskie Island possesses several characteristics which reflect its atypical structure as a barrier island. Most noticeable is the near absence of well developed dune areas adjacent to the raised island mainland. The only viable explanation for this absence lies in the erosive cycle presently being experienced on Daufuskie Island. The protection offered by the presence of Hilton Head Island as well as the less significant sheltering offered by Savannah Beach tends to inhibit wave action on the beaches of Daufuskie Island, consequently minimizing wave influence on beach erosion. The erosion is, therefore, more the result of tidal flow into and out of Calibogue Sound than of any significant wave action. Reflecting the interdependence of these factors, however, the deposition of eroded materials in wide flats windward from the mainland has also acted to restrict wave action on the beach.

That the mainland of Daufuskie Island is eroding, is clearly in evidence, although the stability of Haig's Point could scarcely be disputed. No evidence of extensive activity exists in regions other than the northeastern beach. In addition to evidence cited above, other evidence of erosion of dunes areas is preserved in the vegetational patterns on the Island.

#### E. VEGETATION

Barrier islands are typically characterized by maritime vegetation due to the influence of salt spray on seaboard forests. Live oak, due to its tremendous tolerance to salt spray is commonly accepted as the indicator species of maritime forests. Its presence in large numbers separates maritime forests from climax oak hickory forests. Additionally, loblolly pine, owing to its lack of salt tolerance, is used conversely to imply an absence of typical maritime controls.

When one looks at the vegetational composition of Daufuskie with respect to the two above noted maritime indicators, it becomes readily apparent that the flora evidenced does not follow characteristic patterns. The near absence of live oak stands along the windward side and the abundance of loblolly pine occurring on the northeastern edge of the Island indicates a lack of influence by typical maritime controls. Any effort to explain these patterns must look to the sheltered status of Daufuskie Island for evidence. As was cited previously with respect to the erosional patterns, the lack of significant wave action is paralleled (and perhaps controlled) by the absence of any significant wind patterns from the east. Daufuskie Island is, thus, an atypical barrier island lacking any appreciable development of maritime forest.

Zonation of vegetation on Daufuskie Island follows the rippled effect of coastal terraces evidenced across the Island. Running roughly parallel to the beachline these terraces create a series of ridges and swales causing the moisture regime - and consequently the vegetation - to follow this same rippled pattern. Where the swales are sufficiently deep and the water table sufficiently high, water stands year-round creating linear lakes across the Island.

The vegetation of the inland portion of the island consists largely of an upland swamp community, best developed in the swales and tending to be more xeric along the ridges. Vegetational differences exist in each of the major tracts of the Bostwick properties due to physiographic variations. A consideration of each tract, individually, follows.

Haig's Point, consisting of the northernmost third of the Bostwick property, is drier and lacks the distinct coastal terraces of areas farther south. The vegetation here is predominantly a mixed pine-hardwoods community except where disturbed. Loblolly pine with a mixture of laurel, water and live oak dominates the canopy with sweetgum and red maple appearing in the understory. Yaupon holly and saw palmetto constitute the primary components of the shrub layer. Muscadine and greenbrier vines join the various components of each canopy layer to shade the floor of the forest. Herbaceous vegetation is nearly excluded.

In the disturbed areas minor changes in the vegetation may be noted. Several large specimens of live oak are found adjacent to the lighthouse. Abandoned fields nearby are dominated by a broomsedge savannah with some indication that pines are entering early successional phases.

The Webb Tract, after Captain White, consists of the western third of the Bostwick property. Here terraces are well developed and two of the swales support extensive linear lakes. The vegetation tends to be controlled by the moisture regime throughout the area. The canopy, consisting of pines on the ridges along with sweetgum, red maple, black gum and various oaks in the swales, is relatively sparse. A well developed shrub thicket is found under the canopy and is dominated by yaupon holly, wax myrtle and a mixture of bay species.

Tract three, lying between "the beautiful Sea Pines" and Bloody Point has a physiographic appearance similar to the Webb Tract. Well developed ridge and swale physiography is paralleled by the upland swamp and pine ridge communities. The shrub layer is less well developed here than the Webb Tract due in part to the thicker canopy and in part to the greater influence of fire as a vegetation control.

#### F. FAUNA

Daufuskie Island shows little evidence of significant terrestrial vertebrate populations. White tailed deer, previously abundant on the Island, are noticeably scarce as are raccoons and opossums which would be presumed to be numerous. That the populations of mammals on Daufuskie Island are small is not surprising. The century old habit of grazing domestic livestock without range limits and the presence of wild dog packs on the Island would tend to destroy prime food habitats and place artificial controls on the small mammal populations.

Song birds are quite abundant in the central portion of the Island and make their presence known at all times. Larger birds are not so abundant, but several rookeries are known from Daufuskie especially at Bloody Point. No evidence of rookeries has been found on the Bostwick property.

Shorebirds are common, but not abundant on the broad beach windward from Tract #3 and both cormorants and brown pelicans were noted in abundance offshore. Birds-of-prey were noticeably absent from the site, presumably due to the absence of sizeable populations of prey species. Ospreys are found nesting in the waterways nearby but no nests were observed on Daufuskie Island.

Populations of reptiles are reported to be significant although no particular evidence exists to support these reports. American alligators are reportedly present, but few, and the habitat is definitely available to them on the Island. The Eastern diamondback rattlesnake is reportedly numerous, although it is doubtful that any sizeable populations are to be found there. Other reptiles are present but with the exception of the Loggerhead Sea Turtle none are worthy of mention.

The Loggerhead Sea Turtle, an endangered species, is known to nest on the beaches at Daufuskie Island. The abundance of their nesting sites is presently the subject of several investigations, and the report of these studies will follow.

Populations of amphibians and invertebrates offer no indication that unusually significant, endangered or unusually abundant species inhabit the Island.

#### G. SOILS/TOPOGRAPHY

There are nine different soil types on Daufuskie Island, all of which are fine sands. These soils were grouped according to soil suitability for active use--those well drained, those with a high water table and those that are ponded or subject to frequent flooding. The three soil groups were then plotted and acreage figures compiled for each soil group (see soil suitability map).

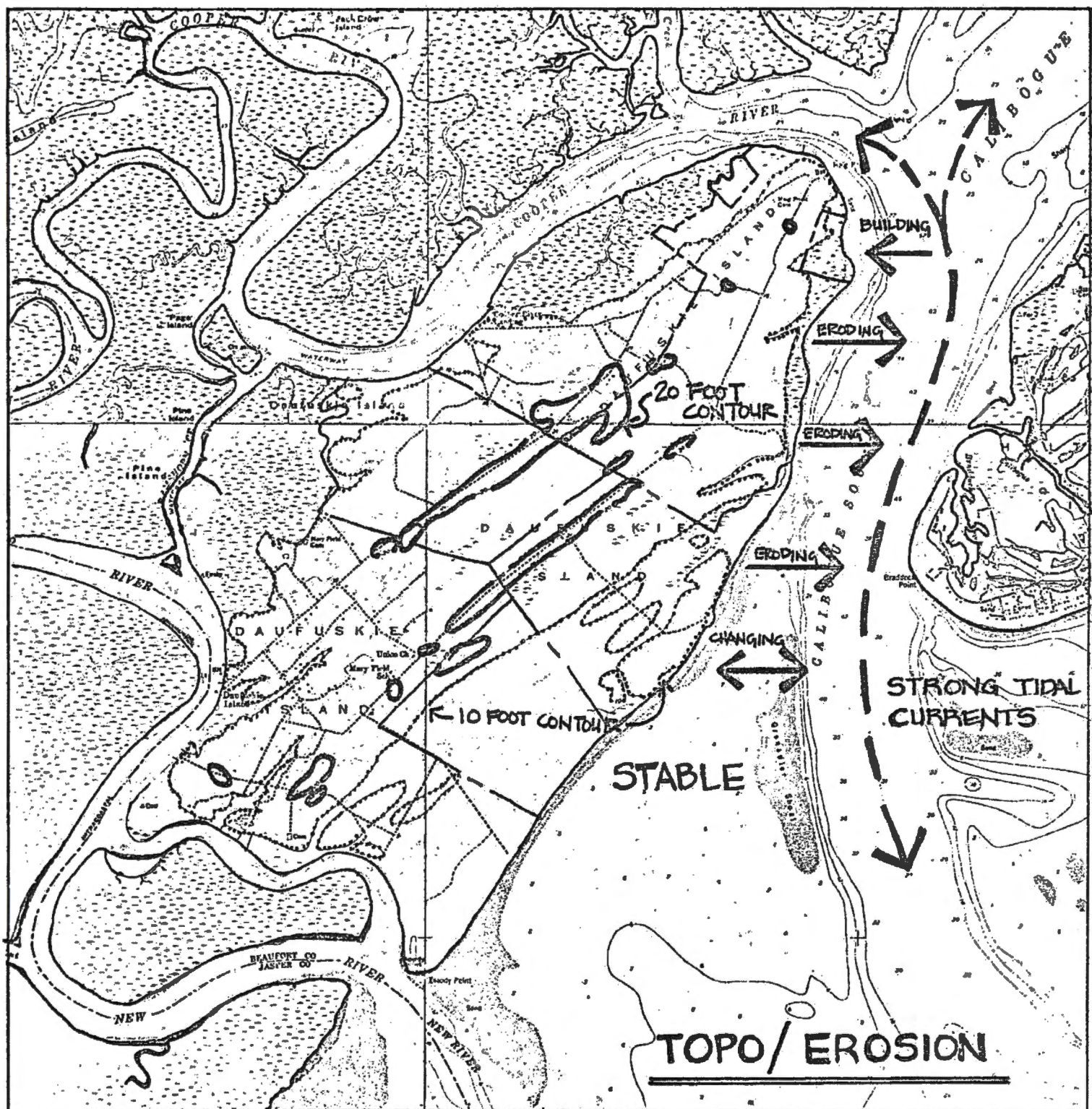
The soil groups follow the rippled effect of coastal terraces running roughly parallel to the beach line. These terraces create a series of ridges and swales causing the moisture regime and soils to follow this rippled pattern.

Most of the high ground is found on the northern tip of the Island in the Haig's Point tract. The other two tracts in the Bostwick property contain little high ground and substantial ponded areas.

The Sea Pines tract contains very little high ground, but it is not nearly as wet as the adjacent Bostwick tract on the ocean side. This is a significant point when considering beach access and beach facilities on the Island. The soil suitability map shows high ground along the coast in the Haig's Point tract, but the currents are very strong and beach access should be discouraged there. The strong currents also cause severe erosion problems in this area.

There is little topographical relief on the Island--the highest elevation being 20+ feet MSL. For this reason soil information is much more useful than any topographical information in determining land-use constraints on the Island.



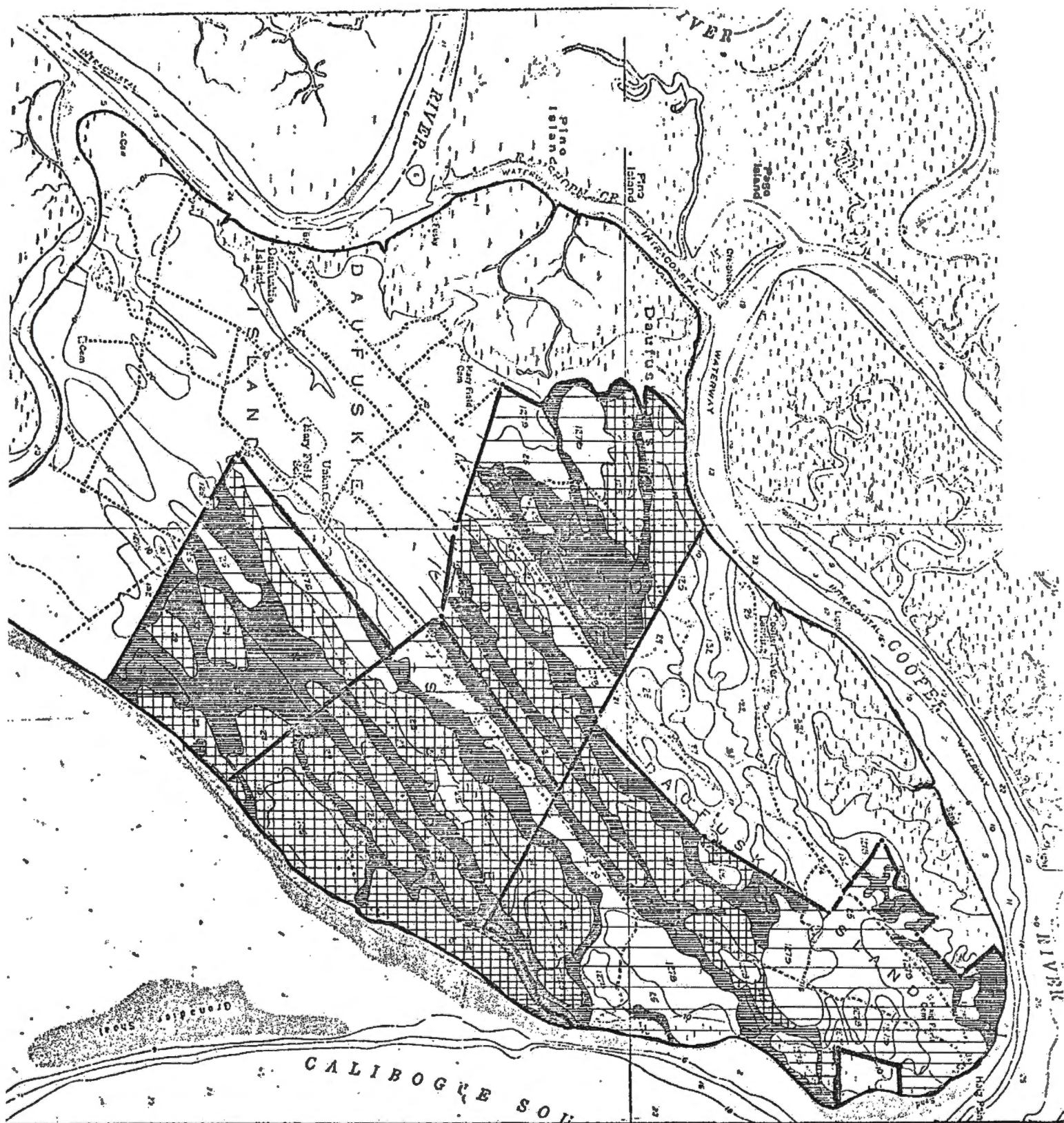


DAUFUSKIE ISLAND

..... 10 FOOT CONTOUR

———— 20 FOOT CONTOUR





DAUFUSKIE ISLAND

## SOIL SUITABILITY



896  
ACRES  
29%

811  
ACRES  
35%

FEWEST DEVELOPMENT  
RESTRICTIONS —  
WELL DRAINED



1123  
ACRES  
37%

684  
ACRES  
30%

MODERATE DEVELOPMENT  
RESTRICTIONS —  
HIGH WATER TABLE



1037  
ACRES  
34%

318  
ACRES  
35%

PROHIBITIVE FOR  
DEVELOPMENT —  
FONDED



## VI. DEVELOPMENT CONCEPTS AND ALTERNATIVES

The development concepts were formulated after analyzing the physical make-up and carrying capacity of the Island, the recreational needs of the area, the economic and sociological impact of the islanders and meetings with the Daufuskie Island Community Improvement Club. The SCORP Exchange Council was given a tour of the Island and their ideas were also analyzed by the PRT staff.

Information from the National Parks Service relative to some of the barrier island parks (Cumberland Island, Georgia; Ship Island, Mississippi; Fire Island, New York; and Cape Lookout National Seashore, North Carolina) were reviewed in detail. Washington State's barrier islands park system was also studied for information pertaining to boat access to the islands and problems that they confronted in their operation.

Access to Daufuskie Island is considered one of the most important problems relating to any development concept. Access was analyzed in detail and it appears that the best solution would be to have a private concessionaire run a tour boat (75-150 people) from the mainland at least twice a day. PRT talked with three current tour boat operators in the area, all of which were very interested in such an operation. All of the following development concepts are based on the private concessionaire operating a tour boat for public access to the island.

A simple, but practical method was used to develop probable visitation to Daufuskie Island. This method was based on the alternate concept plans in terms of proposed development and an analysis of certain basic variables including: maximum capacity per facility, peak vacation months, an estimate of off-season visitation based on other state park sites and their recorded

visitation, availability of transportation to and from the island, and existing as well as proposed day users. A range was then estimated for visitation for each concept plan, assuming full development. Experience at other state parks has shown that it takes four to five years to build up to this level of visitation.

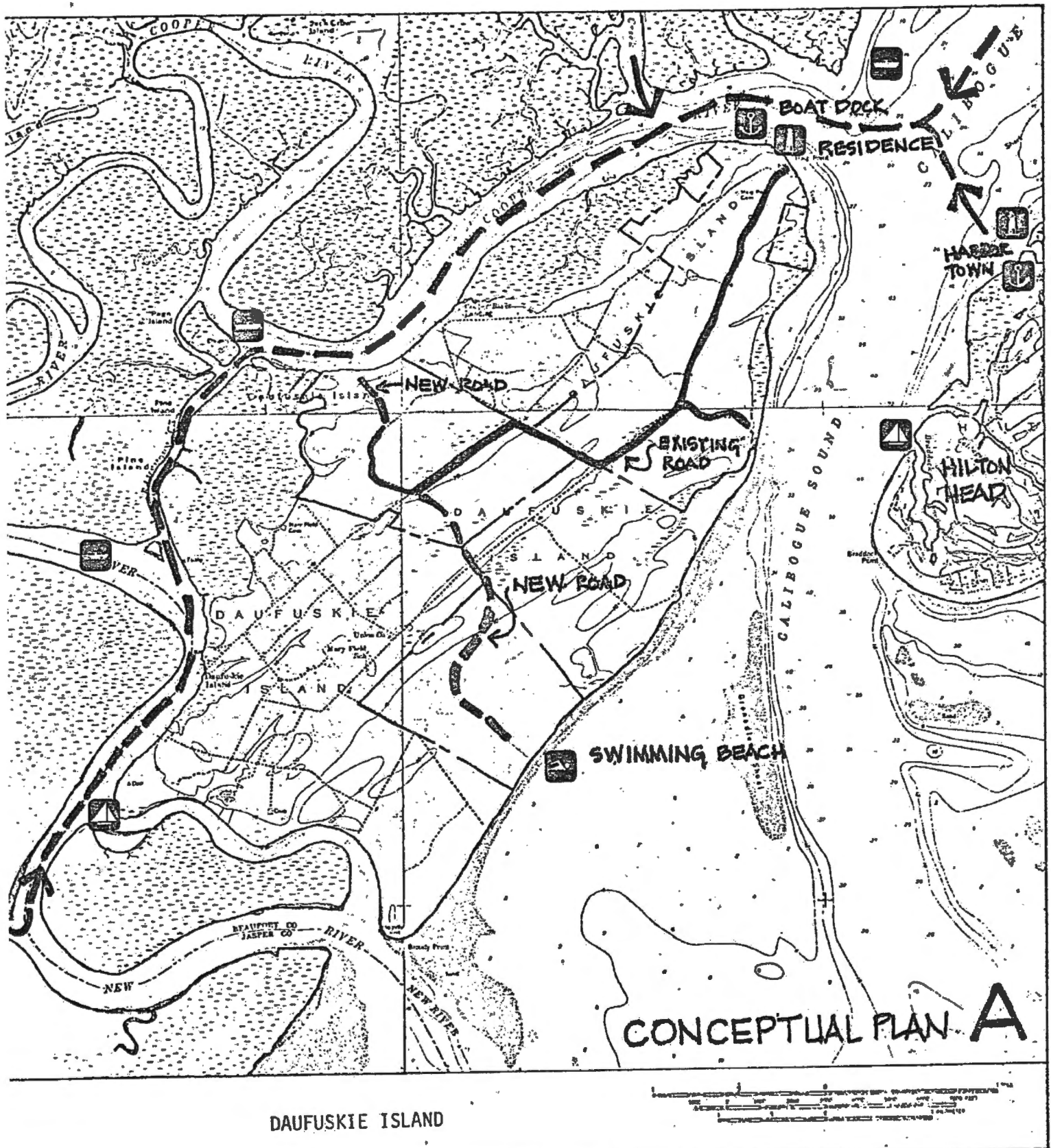
#### A. CONCEPT PLAN "A"

The development of "Concept Plan A" would entail only minimal development to allow for proper management of the property. The major expenditure being 2.5 miles of new road allowing vehicular circulation to be contained within the property boundaries. There would not be any construction on the Intracoastal Waterway, thus providing no formal docking areas. There would be no property purchased on the mainland and thus a "public" jump off point would not be provided. Some "public" transportation via Harbor Town Ferry Service and/or other boat tours of the area would probably be provided.

Major personnel duties would center around maintenance of the grounds and the new road and transporting people from the Lighthouse and Intracoastal Waterway area to the beach.

The annual operating expenses are estimated to be \$50,800 with revenue projections to be only \$8,350 to \$12,850. The revenue projections consist of a percentage of the ferry service and a small charge for public transportation on the Island. Estimated visitation is as follows for Concept Plan A.

	<u>RANGE</u>		
1 Ferry Service	75	-	150
(2 times/day)	x 5		x 5
	375	-	750
	+ 350	+	350
	725		1100
	x 4		x 4
	2900	-	4400
	x 3		x 3
	8700	-	13200
			people/day
			days/week
			people in private craft landing
			on beach
			weeks/year
			peak months
			visitors/year (day use)



DAUFUSKIE ISLAND

CONCEPTUAL PLAN A

MINIMUM DEVELOPMENT

CONSTRUCTION ESTIMATES

Lighthouse Dock	\$ 5,000
Roads - New Construction - 2.5 miles @ \$50,000/mile	125,000
Light House	10,000
Right of Way - 9.2 acres @ 1000/acre	9,200
Storage Building - 720 sq. ft. @ 30 sq. ft.	<u>21,600</u>
Sub Total	170,800
Design 6%	<u>10,248</u>
Sub Total	181,048
Contingencies 10%	<u>18,104</u>
Sub Total	199,152
Inflation 15%	<u>29,872</u>
TOTAL	\$ 229,024

EQUIPMENT INVESTMENT

Four Wheel Drive 2 @ 8000	\$ 16,000
Tractor & Equipment 1 @ 8000	8,000
Boats Runabout 1 @ 4000	4,000
Utility Boat 1 @ 7000	7,000
Parts Inventory L.S.	2,500
Shop Equipment L.S.	5,000
Public Transportation 1 @ 14000	<u>14,000</u>
TOTAL	\$ 56,500

ANNUAL OPERATIONAL EXPENSES

Personnel 3 @ 6000; 2 @ 9000	\$ 36,000
Telephone	700
Electricity	1,200
Sewer Repairs & Maintenance	1,000
Vehicle Supplies	2,500
Maintenance Supplies	4,000
Equipment Amortization	1,800
Fuel	<u>3,600</u>
TOTAL	\$ 50,800

REVENUE PROJECTIONS

Public Transportation (\$50/round trip to beach)	\$4175 - \$6425
Ferry Service (10%) (\$5/round trip from mainland)	<u>\$4175 - \$6425</u>
	\$8350 - \$12850

B. CONCEPT PLAN "B"

In Conceptual Plan "B" more "use" oriented areas would be developed giving the public more activities in which to participate. Along with the 2.5 miles of new road, upgrading of all the old roads would occur. A boat dock and boat slips built on the Intracoastal Waterway would enable the "public" better access to the Island. A primitive camping area would turn the park from a strictly day-use area into overnight usage, giving the islander tourist the full delights of Island living.

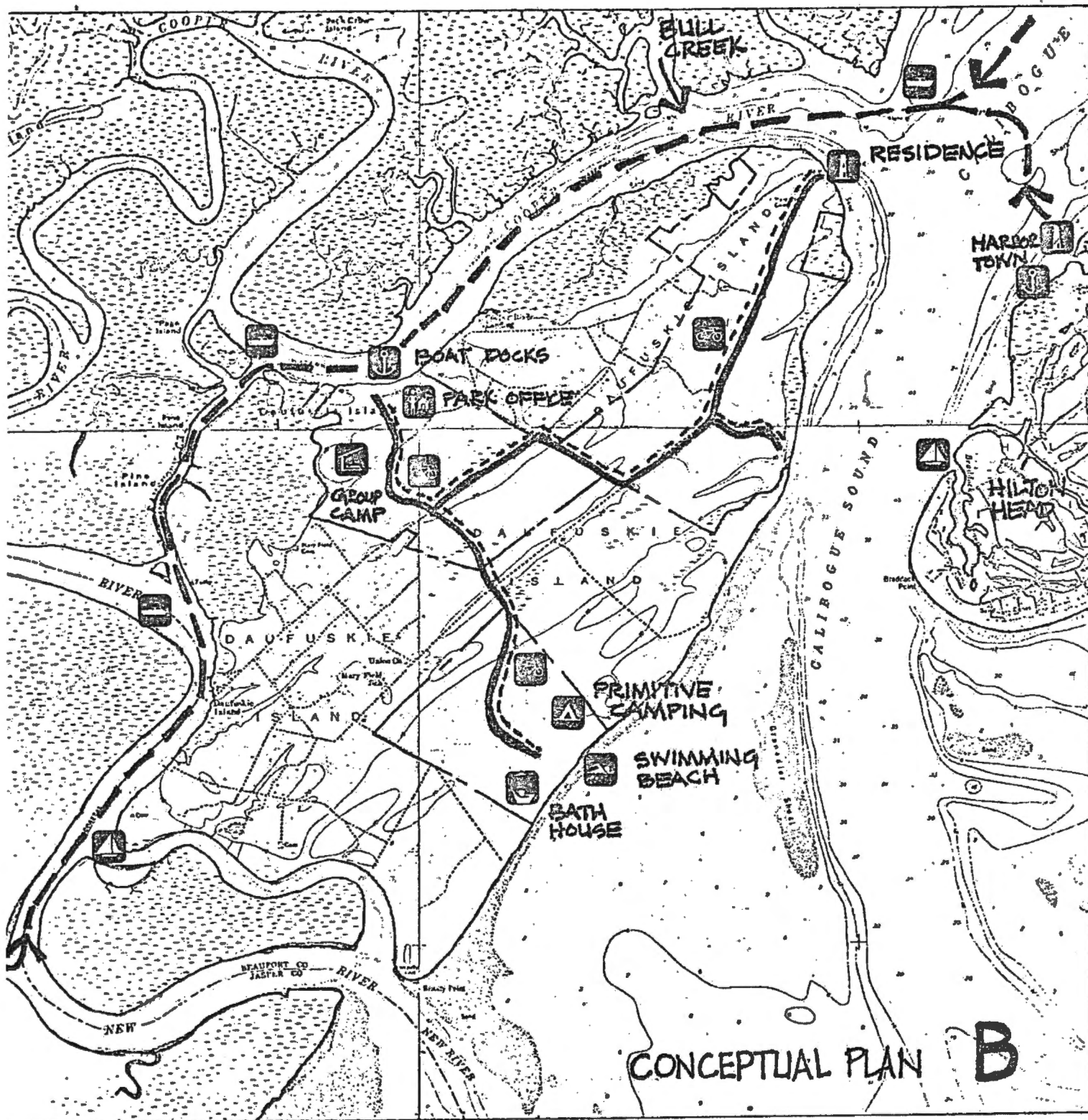
A group camp for 50 campers would allow church groups, scouts, etc. to enjoy and learn about the many facets of the coastal environment. The group camp concept could be expanded into an outdoor coastal laboratory for educational purposes. Construction of a small bathhouse near the swimming area on the beach would be a needed facility for the park user, and bicycle rentals would enable more freedom to move about the Island and thus enjoy more of the Island in shorter periods of time.

The most important development in Concept "B" would be the purchasing of approximately 10 acres on the mainland in order that the park visitor would have a "jumping off" point. This area would have a boat ramp for those users bringing their own boats for transportation and also a dock for a public ferry service. The park visitor could park his car on the mainland and catch the ferry for day-use on the Island or go camping for several days. The parking area would have to be fenced and secured in order to safeguard visitors' vehicles.

The annual operating expenses on the Island is estimated to be \$72,000 with revenue projections to be only \$23,430 to \$29,850. The revenue projections consist of a percentage of the ferry service, transportation on the Island, bicycle rentals and rental of the group camp.

The operating expenses projected for the mainland would be approximately \$15,800. No revenues are expected to be generated. No parking charge or boat ramp usage charge will be instituted in order to keep the overall expense for the park visitor as low as possible. Estimated visitation for Concept Plan B is as follows.

8700	-	13200	day use visitors/year
8400	-	8400	primitive campers/year
			(25 sites; 75 people/day max; 4 peak months)
7200	-	7200	group campers/year
			(60 people/day; 3 peak months + 2160 people off months)
24300	-	28800	day use + overnight use/year



DAUFUSKIE ISLAND



CONCEPTUAL PLAN B

LIMITED DEVELOPMENT

CONSTRUCTION ESTIMATES

Roads - New roads - 2.5 miles @ 50,000/mile	125,000
Repair existing 4.4 miles @ 30,000/mile	132,000
Primitive Camping	7,040
Boat Dock @ Intercoastal Waterway	
Dock & 15 slips @ 3500/slip	52,500
Residence - 1500 sq. ft. @ 45/sq. ft.	67,500
Bathhouse - 700 sq. ft. @ 60/sq. ft.	42,000
Maintenance Building - 720 sq. ft. @ 30/sq. ft.	21,600
Park Office - 240 sq. ft. @ 30/sq. ft.	7,200
Electricity - 17000 @ 2/ft	33,000
Water - 3 wells @ 6/ft	9,000
Group Camp (50 campers, 10 staff)	
6 cabins 640 sq. ft. @ 35/sq. ft.	134,400
1 mess hall 1000 sq. ft. @ 40/sq. ft.	40,000
2 shelters @ 3000	6,000
	180,400
Light House	10,000
Light House Dock	5,000
Right of Way	9,200
Sub Total	701,440
Design 6%	42,086
Sub Total	743,526
Contingencies 10%	74,352
Sub Total	817,878
Inflation 15%	122,681
TOTAL	\$ 940,559

EQUIPMENT INVESTMENT

Four Wheel Drive 2 @ 8000	16,000
Tractor & Equipment 1 @ 8000	8,000
Boats	
2 @ 4000	8,000
1 utility @ 7000	7,000
Parts Inventory L.S.	2,500
Shop Equipment L.S.	5,000
Public Transportation 1 @ 14,000	14,000
Fire Equipment 1 @ 2000	2,000
Bicycles 20 @ 50	1,000
TOTAL	\$ 63,500

ANNUAL OPERATING EXPENSES

Personnel 3 @ 9000; 4 @ 6000	51,000
Telephone	1,200
Electricity	3,500
Sewer Repairs and maintenance	2,000
Vehicle Supplies	3,000
Maintenance Supplies	4,500
Fuel	4,000
Equipment Amortization	2,800
35 TOTAL	\$ 72,000

CONCEPTUAL PLAN B

REVENUE PROJECTIONS

Public Transportation (\$50/round trip to beach or coop store)	\$5575	-	7825
Ferry Service (10%) (\$5/round trip from mainland)	4175	-	6425
Bicycle	1920	-	2880
Group Camp \$2/person/day	11760	-	12720
	\$23430	-	\$29850

# MAINLAND CONCEPTUAL PLAN

## B, C & D

Land - 10 Acres @ 1000/acre to 50,000/acre 10,000 - 500,000

### Construction Estimates

Office - 240 sq. ft. @ 20/sq. ft.	4,800
Storage Building 240 sq. ft. @ 15/ sq. ft.	3,600
Boat Dock - 10 slips @ 2200/slip	22,000
Boat Ramp L.S.	6,000
Fenced Parking Area	<u>25,000</u>

### Equipment Investment

Truck 1 @ 5,000.	5,000
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### Annual Operating Expenses

Personnel - 2 @ 6000	12,000
Telephone	500
Electricity	600
Maintenance Supplies	1,000
Vehicle Supplies	1,200
Other Supplies	500
	<u>15,800</u>

### C. CONCEPT PLAN "C"

Conceptual Plan "C" would consist of maximum development including all aspects of Plan "B" plus the following: park office, 10 cabins, 30-room lodge, equestrian facility with horse trails and board walks incorporated with the nature trails.

To support the increase in staff for these facilities, a barracks building and three residences would be constructed.

A sewage treatment facility with spray field would have to be built also.

The annual operating expenses would increase drastically to approximately \$380,900. Revenue projections should also increase to approximately \$155,350 to \$227,730.

The mainland operation should remain the same as in Concept "B".

Estimated visitation for Plan C follows.

8700	-	13200	day use visitors/year
8400	-	8400	primitive campers/year
7200	-	7200	group campers/year
			lodge for 60 people/day for
			4 peak months +
7800	-	7800	1,080 rest of year
			cabins (10 cabins 5 people/cabin)
			for 4 peak months +
8800	-	8800	weekend use rest of year
40900	-	45400	day use & overnight visitors/year



CONCEPTUAL PLAN C

LIMITED DEVELOPMENT

CONSTRUCTION ESTIMATES

<u>Roads - New roads - 2.5 miles @ 50,000/mile</u>	125,000
<u>Repair existing 4.4 miles @ 30,000/mile</u>	132,000
<u>Primitive Camping</u>	7,040
<u>Boat Dock @ Intracoastal Waterway</u>	
Dock & 15 slips @ 3,500/slip	52,500
<u>Residences - 3 - 1500 sq. ft. @ 45/sq. ft.</u>	202,500
<u>Bathhouse - 700 sq. ft. @ 50/sq. ft.</u>	42,000
<u>Maintenance Building - 720 sq. ft. @ 30/sq. ft.</u>	21,600
<u>Park Office - 240 sq. ft. @ 30/sq. ft.</u>	7,200
<u>Electricity - 17000 @ 2 ft.</u>	33,000
<u>Water - 3 wells 2 6/ft</u>	9,000
<u>Group Camp (50 campers, 10 staff)</u>	
6 cabins 640 sq. ft. @ 35/sq. ft.	134,400
1 mess hall 1000 sq. ft. @ 50/sq. ft.	50,000
2 shelters @ 3000	6,000
<u>Light House</u>	10,000
<u>Light House Dock</u>	5,000
<u>Right of Way</u>	9,200
<u>Barracks 1440 sq. ft. @ 35/sq. ft.</u>	50,400
<u>Cabins 10 @ 1000 sq. ft. @ 45/sq. ft.</u>	450,000
<u>Lodge 30 rooms; 17,300 sq. ft. @ 60/sq. ft.</u>	1,038,000
<u>Docks @ Lodge - 10 slips @ 3500/slip</u>	35,000
<u>Equestrian Facility 4400 sq. ft. @ 25/sq. ft.</u>	110,000
<u>Horse Trails 7 miles @ 3000/mile</u>	21,000
<u>Board Walks - 2200 ft. @ 40 ft.</u>	88,000
<u>Sewage Treatment Facility L.S.</u>	28,000
Sub Total	2,658,840
Design 6%	159,530
Sub Total	2,818,370
Contingencies 10%	281,837
Sub Total	3,100,207
Inflation 15%	465,031
TOTAL	3,565,238

EQUIPMENT INVESTMENT

<u>Four Wheel Drive 4 @ 8000</u>	32,000
<u>Tractor &amp; Equipment 2 @ 8000</u>	16,000
<u>Boats</u>	
2 @ 4000	8,000
1 utility @ 7000	7,000
<u>Parts Inventory L.S.</u>	2,500
<u>Shop Equipment L.S.</u>	5,000
<u>Public Transportation 2 @ 14,000</u>	28,000
<u>Fire Equipment 1 @ 2000</u>	2,000
<u>Bicycles 40 @ 50</u>	2,000
	102,500



CONCEPTUAL PLAN C

ANNUAL OPERATING EXPENSES

Personnel - 3 @ 12,000; 4 @ 9,000; 3 @ 7,200; 3 @ 6,700; 10 @ 6,000	173,700
Personnel Seasonal	5,000
Fringe Benefits	31,450
Telephone	12,000
Utilities	65,000
Repairs	24,000
Vehicle Supplies	9,000
Maintenance Supplies	30,000
Other Supplies	4,000
Rent Equipment	1,000
Rent Other	500
Other Contractual Services	24,000
Insurance	1,250
	<u>380,900</u>

REVENUE PROJECTIONS

Public Transportation (\$50/round trip to beach or coop store)	\$ 5,575	-	\$ 7,825
Ferry Service (10%) (\$5/round trip from mainland)	4,175	-	6,425
Bicycle	3,840	-	5,760
Group Camp \$2/person/day	11,760	-	12,720
Cabins \$30/day	40,000	-	65,000
Lodge \$20/day	90,000	-	130,000
	<u>\$155,350</u>	-	<u>\$227,730</u>



D. CONCEPT PLAN "D"

Conceptual Plan "D" would consist of the same maximum development as Concept "C" plus an additional 10 cabins. These facilities would be rearranged slightly with the additional purchase of 742 acres.

This additional purchase would improve interior circulation, alleviate the possible problems incurred by an inholding tract of land and give the park a continuous beach frontage of 4.2 miles. This tract also has more high ground closer to the beach area, thus easing some of the development constraints confronted in the southern tract.

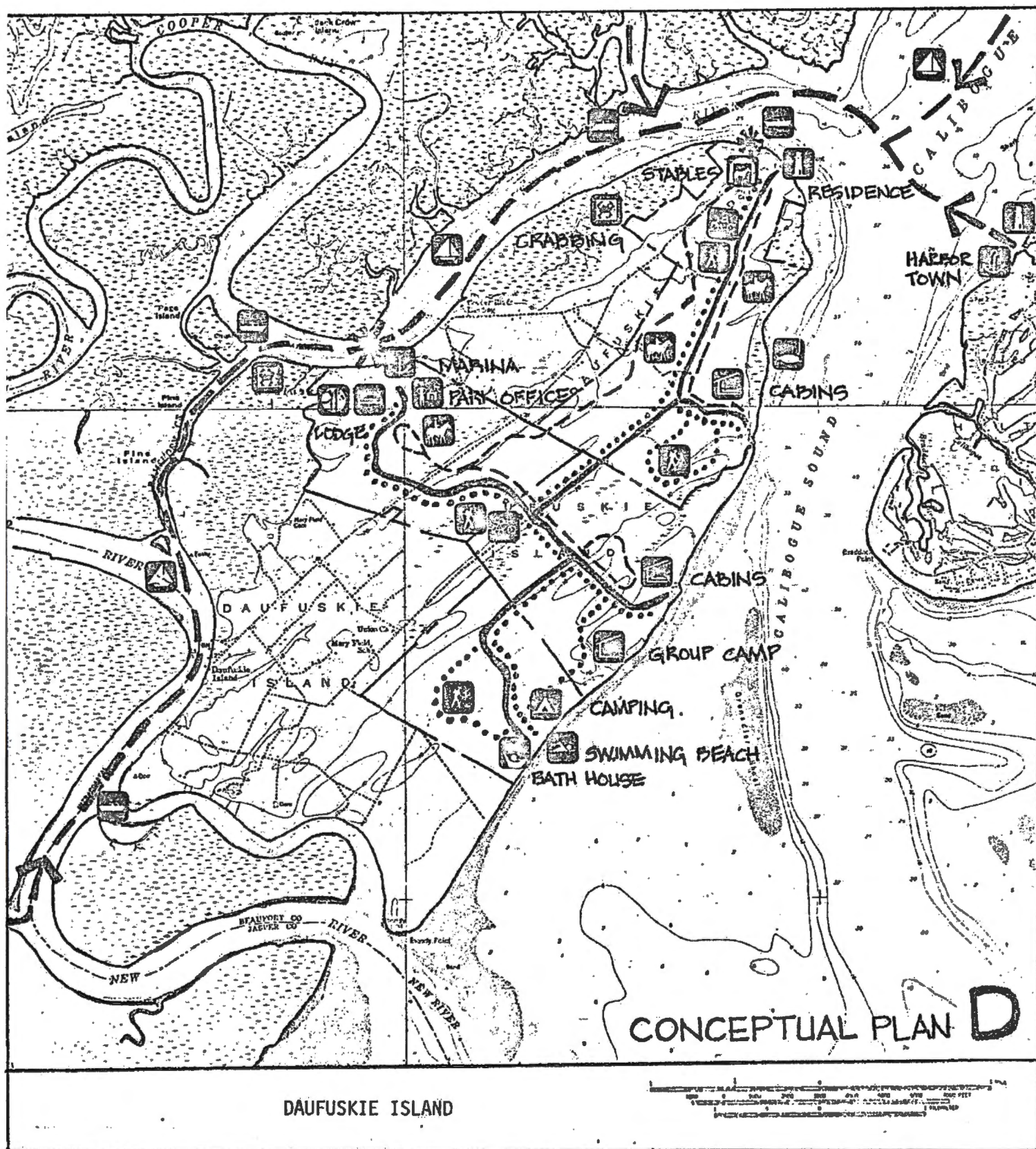
The annual operating expenses are estimated to be \$405,000, with revenue projections to be \$195,350 to \$292,730.

The mainland operation should remain the same as in Concept "B."

Estimated visitation for this plan follows.

Same as A plus 10 more cabins =

49700    -    54200    day use & overnight visitors/year



CONCEPTUAL PLAN D

LIMITED DEVELOPMENT

CONSTRUCTION ESTIMATES

<u>Roads</u> - New roads - 2.5 miles @ 50,000/mile	125,000
<u>Repair existing</u> 4.4 miles @ 30,000/mile	132,000
<u>Primitive Camping</u>	7,040
<u>Boat Dock @ Intracoastal Waterway</u>	
Dock & 15 slips @ 3,500/slip	52,500
<u>Residences</u> - 3 - 1500 sq. ft. @ 45/sq. ft.	202,500
<u>Bathhouse</u> - 700 sq. ft. @ 50/sq. ft.	42,000
<u>Maintenance Building</u> - 720 sq. ft. @ 30/sq. ft.	21,600
<u>Park Office</u> - 240 sq. ft. @ 30/sq. ft.	7,200
<u>Electricity</u> - 17000 @ 2 ft.	33,000
<u>Water</u> - 3 wells 2 6/ft	9,000
<u>Group Camp</u> (50 campers, 10 staff)	
6 cabins 640 sq. ft. @ 35/sq. ft.	134,400
1 mess hall 1000 sq. ft. @ 50/sq. ft.	50,000
2 shelters @ 3000	6,000
<u>Light House</u>	10,000
<u>Light House Dock</u>	5,000
<u>Land Acquisition</u> 742 Ac. @ 1000/acre	742,000
<u>Barracks</u> 1440 sq. ft. @ 35/sq. ft.	50,400
<u>Cabins</u> 20 @ 1000 sq. ft. @ 45/sq. ft.	900,000
<u>Lodge</u> 30 rooms; 17,300 sq. ft. @ 60/sq. ft.	1,038,000
<u>Docks @ Lodge</u> - 10 slips @ 3500/slip	35,000
<u>Equestrian Facility</u> 4400 sq. ft. @ 25/sq. ft.	110,000
<u>Horse Trails</u> 7 miles @ 3000/mile	21,000
<u>Board Walks</u> - 2200 ft. @ 40 ft.	88,000
<u>Sewage Treatment Facility</u> L.S.	28,000
	<hr/>
Sub Total	3,849,640
Design 6%	230,978
Sub Total	4,080,618
Contingencies 10%	408,061
Sub Total	4,489,236
Inflation 15%	673,385
TOTAL	5,162,621

EQUIPMENT INVESTMENT

<u>Four Wheel Drive</u> 5 @ 8000	40,000
<u>Tractor &amp; Equipment</u> 2 @ 8000	16,000
<u>Boats</u>	
2 @ 4000	8,000
1 utility @ 7000	7,000
<u>Parts Inventory</u> L.S.	2,500
<u>Shop Equipment</u> L.S.	5,000
<u>Public Transportation</u> 2 @ 14,000	28,000
<u>Fire Equipment</u> 1 @ 2000	2,000
<u>Bicycles</u> 40 @ 50	2,000
	<hr/>
	110,500

CONCEPTUAL PLAN D

ANNUAL OPERATING EXPENSES

Personnel - 3 @ 12,000; 4 @ 9,000; 3 @ 7,200; 3 @ 6,700; 13 @ 6,000	191,700
Personnel Seasonal	5,000
Fringe Benefits	35,550
Telephone	12,000
Utilities	65,000
Repairs	24,000
Vehicle Supplies	9,000
Maintenance Supplies	32,000
Other Supplies	4,000
Rent Equipment	1,000
Rent Other	500
Other Contractual Services	24,000
Insurance	<u>1,250</u>
	405,000

REVENUE PROJECTIONS

Public Transportation (\$ .50/round trip to beach or coop store)	\$ 5,575	-	\$ 7,825
Ferry Service (10%) (\$5/round trip from mainland)	4,175	-	6,425
Bicycle	3,840	-	5,760
Group Camp \$2/person/day	11,760	-	12,720
Cabins \$30/day	80,000	-	130,000
Lodge \$20/day	<u>90,000</u>	-	<u>130,000</u>
	\$195,350	-	\$292,730

## VII. SUMMARY

An attempt has been made to analyze the potential of Daufuskie Island as a destination state park. Ecological, recreational demand, sociological and economic research of the area including factors such as county support, access and impact on island residents, have been accomplished to determine the feasibility and extent of recreational development.

As a result of this research, it is believed that there are no environmental/ecological factors which would preclude the development of a state park. As in any development, however, there are problems and constraints which must be recognized. For example, Daufuskie Island does show some development restrictions particularly related to soil suitability and erosion. Data indicates that at least 65 percent of the property in question is adaptable for state park uses. The lack of access is one of the main development constraints on the island, but this could also be an asset in the future.

In terms of economic and sociological trends, it appears that Beaufort County will continue to expand its population although at a slower rate than has occurred in previous years. Data also indicates that the effective buying income will continue to rise, supporting the trend of in-migration of both the wealthy and the retired. At the same time, beach access is a crucial problem along the lower coast for all South Carolinians. It is believed that Daufuskie can help meet these recreational demands.



#### VIII. CONCLUSIONS AND RECOMMENDATIONS

Several design alternatives have been proposed from little or no development to maximum development. It is recommended that Concept B be adopted as the development goal of PRT. This concept includes minor road construction, boat docks, a primitive camping area, a group camp, a bathhouse and bicycle rentals. This plan also recommends the acquisition of approximately 10 acres on the mainland, providing a boat ramp, parking area and dock for a public ferry service. As a result of the research it is recommended that the Bostwick property on Daufuskie Island be obtained by PRT. It is further recommended that the "Sea Pines" tract also be purchased. The acquisition of the Sea Pines tract which is surrounded by the Bostwick property would help consolidate the park area. This tract would also provide more beach area and needed high ground along the ocean side of the island. Total estimated cost of this recommendation is \$1,907,459. This includes \$940,559 for construction with an initial equipment investment of \$63,500; cost of the Sea Pines tract \$742,000; cost of mainland acreage is estimated to be approximately \$100,000; and mainland development \$61,400. Revenues are projected at \$23,430 to \$29,850. It is realized that this park could not be self-sustaining. However, it must be realized that the acquisition and development of the Daufuskie property would provide a unique park facility which does not already exist in the system.

It is felt that the minimum development concept will best meet recreational needs at this time while maintaining the character of the Island and life styles of the Islanders. In addition, the very high cost of construction on the Island was also a factor in this recommendation.

In keeping with this concept of minimum development, it is further recommended that water access be maintained as the only means of reaching the Island and that no motorized vehicles be allowed in the park except those needed for park operations.